FRANCISCO **FARINHA**

Data Scientist

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SKILLS

- Python, C++, MATLAB/Octave
- Tensorflow/Keras, PyTorch, CNNs, YOLO, GCNs, GPT-4

- NumPy, Pandas, OpenCV, Matplotlib
- Linux, Bash, ROS, Gazebo, OnShape

TECHNICAL WORK EXPERIENCE

2023/07 – Present
DATA SCIENTIST, BLACKBERRY

- Optimized IVY synthetic sensors, reducing CPU and memory usage to within 5% for ML-IDS solutions.
- Partnered with the Threat Research and Intelligence team on automotive cybersecurity research, creating a new MITRE framework.
- Conducted GPT-4 experiments for SOC analyst support, focusing on classification and generation of MITRE unit tests for IDS solutions.
- Spearheaded research into differential privacy techniques to protect ML models against model inversion attacks, aiming to integrate these into an 'ML on the Edge' framework.

2022/09 – 2022/12
DATA SCIENCE STUDENT, BLACKBERRY

- Assessed BlackBerry's custom anomaly detection algorithm against standard Intrusion Detection Systems for feasibility.
- Improved facial detection module speed during project escalations and educated BlackBerry Labs on facial recognition loss functions.
- Developed and delivered a workshop on Convolutional Graph Neural Networks, exploring their use in malware classification.

2021/09 – 2022/04
RESEARCH ASSISTANT, CANARY COGNITION RESEARCH

- Training and fine-tuning BERT models on transcribed speech data for Alzheimer's Disease classification.
- Exploring visualization techniques for model interpretability to find patterns in input data.
- Participating in weekly reading groups to present novel papers.

2020/09 – 2021/04
MACHINE LEARNING SPECIALIST, FLASH FOREST INC.

- Developed QGIS Machine Learning segmentation pipeline to aid in planting missions.
- Compiled, cleaned, and maintained dataset of orthomosaic images.

2020/07 – 2020/09

MACHINE LEARNING INTERN, LONGERVISION TECHNOLOGY

- Prepared client image dataset trained and deployed a quantized YOLOv4 model on NVIDIA Jetson Nano for detecting passengers and workers on train platforms.
- Established a Structure from Motion (SFM) pipeline for 3D reconstruction of drone footage using OpenMVG and OpenMVS.

TECHNICAL PROJECT EXPERIENCE

2021 - 2022

DA VINCI CAPSTONE PROJECT, UBC ROBOTICS AND CONTROL LAB

- Implemented control algorithms for a pickup camera in CoppeliaSim and DVRK/ROS.
- Tested the framework on the physical da Vinci system, setting up a user study to obtain performance metrics of the control algorithms

2021

TACTILE SENSING CAPSTONE PROJECT, SANCTUARY AI

- Created testing platform for Sanctuary AI's tactile sensors.
- Researched and implemented algorithms such as Tactile-SIFT, to classify objects.

2020

EECE 571T ADVANCED MACHINE LEARNING TOOLS, UBC

- Implemented ML algorithms including unsupervised (KMeans, GMMs), supervised (SVM, random forests, DNNs, CNNs) and reinforcement learning.
- Collaborated with the BC Cancer Agency on biomarker scoring, focusing on FOXP3+ T-Cell pattern detection in follicular lymphomas using segmentation and classification techniques.

2019 - 2023

OPENROBOTICS SOFTWARE TEAM LEAD, UBC

- Team Lead developing software to allow a robot to perform a variety of complex tasks and compete in the 2023 RoboCup@Home competition.
- Overseeing research and implementation of person tracking, pose recognition, speech recognition, object detection, and NLP pipelines, in ROS/Gazebo.

EDUCATION

2017/09 – 2023/05

ENGINEERING PHYSICS, BASC, UNIVERSITY OF BRITISH COLUMBIA

- Cumulative Average 82%